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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/194,112	11/23/1998	MASAHIDE ONUKI	229-532PCT	2812

2292 7590 01/07/2003

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EXAMINER

BLAU, STEPHEN LUTHER

ART UNIT	PAPER NUMBER
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3711

DATE MAILED: 01/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/194,112

Applicant(s)

ONUKI ET AL.

Examiner

Stephen L. Blau

Art Unit

3711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) 39-41 and 48-50 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-38 and 42-47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 November 1998 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 23.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Claims 39-41 and 48-50 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 25. Due to the different species being patentably distinct and there are no subclasses specifically designated for different face thicknesses it would be an added burden to search for all the different species.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the face plate having a thicker central part and a hitting face having at least partially a hitting portion with consists of metallic material with a thickness of 1 to 3 mm in claims 45-47 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Double Patenting

3. Applicant is advised that should claim 45 be found allowable, claim 47 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC ' 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 21, 23-25, and 30 stand rejected and claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Peker.

Peker discloses a golf club head having a hitting face formed of a metallic amorphous metal, an amorphous alloy of zirconium base, Ni, Al, Cu, Hf, tensile strength 1.9 GPa (194 kgf/mm²) (Col. 4 Lns. 12-43), a material meeting the formula M(a)X(b) with $65 \leq a \leq 100$ and $0 \leq b \leq 35$ in the form of M(Zr/Ti/Be/Cu/Ni) of 100 (Col. 4,

Lns. 13-16), a material meeting the formula $Zr(c)M(d)X(e)$ with $20 \leq c \leq 80$, $20 \leq d \leq 80$, and $0 \leq e \leq 35$ in the form of Zr of 41.2, M(Ti/Be/Cu/Ni.) of 58.8, and X(Hf) of 0 (Col. 4, Lns. 23-27), and material meeting the formula $Zr(c)M(d)X(e)$ with $50 \leq c \leq 75$, $25 \leq d \leq 50$, $0 \leq e \leq 1$ in the form Zr of 60, M(Al/Ni) of 40 and X(Hf) of 0 (Col. 4, Lns. 39-43) and an iron head (Fig. 6). Clearly the hitting face material has a Young's modulus and a hardness and one skilled in the art in manufacturing a hard face with mixtures of elements of Zr/Ti/Be/Cu/Ni/Hf would have selected a composition having a suitable Young's modulus and tensile strength in which Young's modulus and tensile strength meets the relationships in claim 30, a Young's modulus of 5,000 to 10,000 kgf/mm², and a tensile strength of 105 to 175 kgf/mm² are included.

The difference between the claims and Peker is that Peker does not disclose a Young's modulus of 5,000 to 10,000 kgf/mm², a tensile strength of 105 to 175 kgf/mm², a relationship between Young's modulus and tensile strength as defined by claim 30.

It would have been obvious to modify the face of Peker to have a Young's modulus and tensile strength as defined by the claims in order to have face which has a sufficient flex for a specific golfer.

6. Claims 1-20, 22, 26-29 and 31-32 stand rejected and claims 33-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peker as applied to claims 21, 23-25, 30, and 38 above, and further in view of Kobayashi (5,611,742).

Clearly the hitting face material of Peker has a Young's modulus and a hardness and one skilled in the art in manufacturing a hard face with mixtures of elements of Zr/Ti/Be/Cu/Ni/Hf would have selected a composition having a suitable hardness and Young's modulus in which a hardness and Young's modulus which meets the relationship in claim 5 and a Vickers hardness of 400 to 1,000 HV are included.

Peker lacks a hitting face having at least partially a hitting portion which consists of a metallic material with a thickness of 1 to 3 mm, a back of a hitting portion being not supported by a support member, a Vickers hardness of 400 to 1,000 HV, a relationship of Young' modulus and hardness as defined by claim 5, and a wood head.

Kobayashi discloses a wood head (abstract) having a face made of a metallic alloy with a thickness being 2-3 mm (Claim 2) and a head wherein a back of a hitting portion is not supported by a support member (Fig. 7) in order to have a larger sweet area without damaging a strength of a head (Abstract). In view of the patent of Kobayashi it would have been obvious to modify the head of Peker to have a hitting face having at least partially a hitting portion which consists of a metallic material with a thickness of 2 to 3 mm and to have a back of a hitting portion being not supported by a support member in order to have a larger sweet area without damaging a strength of a head. Also in view of the patent of Kobayashi it would have been obvious to modify the head of Peker to have a head being a wood in order to utilize the advantages of the material of Peker for wood heads.

In addition, it would have been obvious to have a Vickers hardness of 400 to 1,000 HV, and a relationship of Young's modulus and hardness as defined by claim 5 in order to have a face which maximizes the transfer of energy to a ball at impact.

7. Claims 42-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peker and Kobayashi (5,611,742) as applied to claims 1-20, 22, 26-29 and 31-37 above, and further in view of Anderson.

Peker lacks a head body providing a face mounting part for attaching a face plate comprising a periphery of a hitting face and a face mounting part being provided with a step down zone. Anderson discloses a head body providing a face mounting part for attaching a face plate comprising a periphery of a hitting face and a face mounting part being provided with a step down zone (Fig. 12). In view of the patent of Anderson it would have been obvious to modify the head of Peker to have a head body for a wood providing a face mounting part for attaching a face plate comprising a periphery of a hitting face and a face mounting part being provided with a step down zone in order to ensure the face is more securely attached to the body.

8. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Peker as applied to claims 21, 23-25, 30, and 38 above, and further in view of Anderson.

Peker lacks a head body providing a face mounting part for attaching a face plate comprising a periphery of a hitting face and a face mounting part being provided with a step down zone. Anderson discloses a hollow wood head body providing a face

mounting part for attaching a face plate comprising a periphery of a hitting face and a face mounting part being provided with a step down zone (Fig. 12). In view of the patent of Anderson it would have been obvious to modify the head of Peker to have a wood head body providing a face mounting part for attaching a face plate comprising a periphery of a hitting face and a face mounting part being provided with a step down zone in order to utilize the advantages of the material of Peker for wood heads and in order to ensure the face is more securely attached to a wood body.

9. Claims 1, 5, and 45-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peker as applied to claims 21, 23-25, 30, and 38 above, and further in view of Kobayashi (5,601,501) and Sieleman.

Clearly the hitting face material of Peker has a Young's modulus and a hardness and one skilled in the art in manufacturing a hard face with mixtures of elements of Zr/Ti/Be/Cu/Ni/Hf would have selected a composition having a suitable hardness and Young's modulus in which a hardness and Young's modulus which meets the relationship in claim 5 and a Vickers hardness of 400 to 1,000 HV are included.

Peker lacks a hitting face having at least partially a hitting portion which consists of a metallic material with a thickness of 1 to 3 mm, a Vickers hardness of 400 to 1,000 HV, a relationship of Young' modulus and hardness as defined by claim 5, and a face plate constructed with a thicker central part with a periphery part whose thickness reduces gradually outward.

Kobayashi discloses an iron head (abstract) having a face made of a metallic alloy with a thickness being 2-3 mm (Claim 2), a head body, and a face plate (Fig. 5) in order to have a larger sweet area without damaging a strength of a head (Abstract). In view of the patent of Kobayashi it would have been obvious to modify the head of Peker to have a hitting face having at least partially a hitting portion which consists of a metallic material with a thickness of 2 to 3 mm and to have a back of a hitting portion being not supported by a support member in order to have a larger sweet area without damaging a strength of a head.

Sieleman discloses a face within the surrounding edge constructed with a thicker central part with a periphery part whose thickness reduces gradually outward (Figs. 4-6) in order to cause the ball to go far when impacted at the center (Col. 2, Lns. 4-18). In view of the patent of Sieleman it would have been obvious to modify the head of Peker to have a face plate constructed with a thicker central part with a periphery part whose thickness reduces gradually outward in order to cause the ball to go far when impacted at the center.

In addition, it would have been obvious to have a Vickers hardness of 400 to 1,000 HV, and a relationship of Young' modulus and hardness as defined by claim 5 in order to have a face which maximizes the transfer of energy to a ball at impact.

Response to Arguments

10. The arguments that it is improper to use the patent of Peker since Peker fails to disclose a Young's modulus and tensile strength in which Young's modulus and tensile strength meets the relationships in claim 1, a Young's modulus of 3,000 to 12,000 kgf/mm², and a tensile strength of 105 to 175 kgf/mm² are disagreed with.

Obviousness can be established to modify the teaching of prior art to produce the claimed invention by motivation in the knowledge generally available to one of ordinary skill in the art (In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)). In addition, inherent teaching of a prior art reference may be relied upon in a rejection (In re Napier, 55 F.3d 610, 613, 34 USPQ2d 1782, 1784 (Fed. Cir. 1995). Peker discloses the alloys which meet the percentages as defined in the claims (Claims 14-19). Clearly the face of Peker will have inherent properties as Young's modulus, tensile strength and hardness. Since the material of Peker is substantially the same as the material claimed by the applicant in composition, it would be obvious to have the face of Peker having substantially the same properties as claimed. In addition, these properties would be suitable selections for one skilled in the art to meet the needs of a specific golfer out of the numerous different types of golfers with different needs. The arguments that it is improper to use the patent of Kobayashi '742 since Kobayashi '742 fails to disclose a Young's modulus and tensile strength in which Young's modulus and tensile strength meets the relationships in claim 1, a Young's modulus of 3,000 to 12,000 kgf/mm², and a tensile strength of 105 to 175 kgf/mm² are disagreed with. Kobayashi '742 was not used to show these elements of structure but that it is known to make heads where a back of a hitting portion is not supported by a support member with thicknesses

between 1 to 3 mm. Clearly the head structure of Kobayashi '742 is a common head design which the head of Peker would benefit from. The argument that it is improper to combine the references of Peker and Kobayashi '742 since the method of forming a head of Peker requires a support is disagreed with. There are numerous ways for manufacturing a head and forming the individual parts apart from one another prior to assembly it the most common method. The face material of Peker is a suitable face material for head design of Kobayashi '742. The argument that it is improper to combine the references of Peker and Kobayashi '742 since Peker discloses an iron and Kobayashi '742 discloses a wood is disagreed with. Both irons and woods require materials for hitting surfaces which Peker provides. The argument that it is improper to combine the references of Peker and Kobayashi '742 since Peker and Kobayashi '742 discloses different metallic alloys for a hitting face is disagreed with. Every head which has a face would have a face thickness. Kobayashi '742 discloses a suitable face thickness use in the art of golf. The argument that it is improper to use the metal composition in Peker which was not mentioned as a use for golf club heads is disagreed with. Peker is concerned with improving the surface of a metallic material and one of the examples is a golf head. Each of the different embodiments of metal composition with this improved surface would be an obvious and suitable selection.


11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steve Blau whose telephone number is (703) 308-2712. The examiner is available Monday through Friday from 8 a.m. to 4:30 p.m.. If the examiner is unavailable you can contact his supervisor Jeanette Chapman whose telephone number is (703) 308-1310. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0858.

Slb/ 3 January 2002


STEPHEN BLAU
PRIMARY EXAMINER